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# AIRCRAFT *versus* BATTLESHIPS

BY CAPTAIN ROY CAMPBELL SMITH, U. S. N.

THIS is a question much discussed of late, notwithstanding the Conference on Limitation of Armament, one school holding that the reduced number of capital ships is an honest reduction, the other holding that battleships were in effect scrapped before the Conference began.

It is not proposed here to review the arguments that have been adduced on one side or the other, for they have been stated quite fully in the reports on the bombing tests last summer, when the surrendered German warships were destroyed by aircraft, and in numerous articles in the press. It may be accepted at once that bombs from aircraft are quite capable of destroying battleships.

Taking up the argument from this point on, nearly all the published articles assume a fleet at sea and hostile aircraft that have gained touch with such fleet, the assumption involving a situation in which one force is composed entirely of aircraft and the other force principally of surface ships, perhaps assisted by aircraft. If the air force is large this situation could easily result in the destruction of the fleet.

The conflict that ensues is a question of tactics. Tactics is a branch of the art of war that treats of the principles governing actual contact. Its theatre is the field of battle. It is a most important branch of the art. Other branches are strategy and logistics. Strategy gets the units to the field of battle, logistics supplies them *en route* and subsequently. Strategy and logistics, as distinguished from tactics, cover the whole theatre of war, and are not limited to the field of battle.

Strategy and logistics have been fully worked out for surface fleets. If they have been as fully worked out for aircraft, there has been little reference to it in the published discussions.

The writer contributed an article to THE NORTH AMERICAN REVIEW, for March, 1904, under the caption of *An Untechnical View of Warfare*, in which the elements of tactics and strategy were rather fully discussed. It was seen that there were inherent, or internal, elements in each, which governed the warfare of any given period, and that there were external, temporary, or accidental elements that affected particular battles or campaigns.

The inherent elements of tactics were seen to be weapons, mass, motion, resistance. Tactical results are achieved by the application of force, and force for such purpose is matter in motion. The power to resist force must also be considered. Here then are all the inherent elements of tactics.

Weapons have been the dominating element of tactics in all ages. They are the means for the application of force. Mass taken in conjunction with motion determines momentum. Both of these elements concern both inert materials and living bodies, projectiles, ships, men, horses, their size, numbers, and method of motion. By resistance is meant rather passive resistance, which also includes protection. It is the reverse of vulnerability.

The external elements depend on the surroundings, such as the natural and artificial features of the field of battle, the weather and the light. They may influence a particular battle, but they do not influence the tactics of the age, which is based on the normal surroundings, as do the internal elements.

Now we come to the elements of strategy, first the inherent elements, depending on the forces themselves. Strategy covers the whole theatre of war. The forces must cover it also. To do this they must have sufficient means of transportation and self-sustaining capacity, which may be termed respectively locomotion and endurance. The last named quality has a partly technical meaning, separate from mere physical endurance. Fuel endurance, for instance, means the steaming radius without refueling. So the endurance of fighting forces in this sense means their self-sustaining capacity under normal conditions, not only in fuel, but in food, ammunition and all necessary supplies. The external elements of strategy are similar to those of tactics. They are the natural and artificial features of the whole theatre of war, such as roads, fortifications, commu-

nications, population, harbors, naval bases, weather. The main difference between land strategy and sea strategy is that the external features are the prominent ones to be considered in the former, whereas in sea strategy the internal elements of locomotion and endurance, as above understood, are of greater consequence.

Having reaching this point it will be pertinent to quote directly a paragraph from *THE NORTH AMERICAN REVIEW* article previously cited (from page 434):

The elements of tactics and strategy may sometimes be invoked to clarify thought in regard to disputed matters of policy. For instance, some years ago a French school advocated numerous small gunboats and torpedo-boats in place of a few ironclads; and, even in this country, at this day, there are people who believe it would be a good plan to stop building battleships and turn our whole attention to submarines. Considering the matter first in the light of the elements of tactics, there does not seem to be any self-evident conclusion in sight. If the one battleship and the many gunboats or submarines are actually on the field of battle within reach of each other, it may go hard with the battleship. But first to get them there. That concerns strategy. The elements are locomotion and endurance. Granted that the small vessels have sufficient locomotion and can make sea voyages, is it not endurance, or the power of continuous self-sustainment, in which they are totally lacking? The battleship carries the nation's power to any part of the world, and is independent of supplies for long periods. The gunboats and submarines are helpless without a moving base, and unless the moving base is a battleship, she too is helpless. This consideration seems to indicate that the battleship is an essential unit of the fleet, even granted that the smaller craft are thoroughly efficient in their own peculiar sphere.

Since the above was written the submarine has been much in evidence, but mainly in connection with the illegal sinking of merchant ships, now piracy. It is true that the records show that during the war more warships were sunk by submarines than by gun fire, but this does not argue that the submarine is fit to replace the battleship. The conditions of the war were peculiar. There was only one big naval battle, Jutland, and this was not fought to a finish. Also, the defense against submarines was little developed until during the course of the war, as for instance, in moving at speed, zigzagging, the use of listening devices, destroyers, depth bombs. If submarines increase in size and eventually become large enough to fill the rôle of the battleship, the case will be different. But that era has not yet arrived.

Aircraft are a new arrival in warfare. Rams, torpedoes, and submarines have each in their turn been destined to revolutionize warfare afloat. Their advocates were convinced that the solution had at last been found. Time and experience decreed otherwise. The usual difficulty was that some inherent element of tactics or strategy had not even been considered.

To pass now to aircraft. If they can begin their flight near enough to the objective, and are in sufficient numbers, they can achieve success; but, as Rear-Admiral William Ledyard Rodgers pointed out recently, in an address before the Society of Naval Architects and Marine Engineers, they cannot remain on the field of battle even if successful. Expressing the same idea in other words, they lack the essential inherent element of endurance, or self-sustaining capacity. That is, they are limited in their operations by their radius of movement. For coast defense there is no question that they are of the greatest value. For action farther afloat they must depend on a moving base, that is, an airplane carrier.

War fleets in these days are going to keep at a respectful distance from hostile coasts, for many reasons, among them mines and submarines, as well as aircraft. Fleets are for the purpose of opposing hostile fleets. If, however, they cannot act also against each other's coasts, of what use are they? Why cannot they all be abolished? Well, for one reason, sea-borne commerce will be in evidence for a long time to come, and will need protection. So fleets will be needed both to attack and to protect commerce, if for no other reason.

Commerce cannot be attacked by aircraft. That is, aircraft cannot capture ships, and they cannot destroy them without first putting their crews and passengers in a position of safety. It is true that German submarines did this very thing in the late war, contrary to the practice of international law. But the principle of the immunity of the passengers and crew has been reaffirmed by the Washington Conference, and it may be fairly assumed that it will not be violated by any civilized nation.

Aircraft can assist materially in attacks on commerce by scouting and directing the approach of surface craft capable of capturing the merchant ships without endangering the passen-

gers and crews of the latter. Hence merchant ships will go mostly in convoys adequately protected by surface ships to repel the attacks of hostile surface ships. If the convoy is of great value, serious attempt will be made to capture it, and the hostile surface craft will be of corresponding power and importance. Equally the defense, to repel such an attack, must be of adequate power. To cruisers and destroyers the opposing forces will gradually add airplanes and carriers, then battle cruisers to protect the carriers and other surface craft, and finally, in their proper sphere, battleships.

Due to the lack of the essential inherent strategic element of endurance in the airplane, the battleship, strong in this element, thus finally comes to the assistance of the airplane.

An idea has been advanced that owing to the difficulty, if not the impossibility, of approaching hostile shores in these days, expeditionary forces for overseas operations are henceforth barred, and that armies hereafter are continental, for service only on the continent of their origin. This will be true if ways cannot be devised for convoying and landing expeditionary forces with some expectation of success. The great menace is of course aircraft. Mines and submarines and fortifications have been encountered in the past, notwithstanding which forces have been landed. The most effective method of opposing aircraft is with other aircraft. This at present would be a difficult operation if the sea passage were long, for all the resources of the invaded country would be at hand to supply aircraft on the coast to oppose the invader's aircraft arriving in carriers; unless indeed with the progress of aviation, sea transport becomes a thing of the past, and all communication becomes aërial. At such time, it is admitted, conditions will have changed and the day of battleships will have ended.

The question of the transport of armies will certainly be solved in one way or another, as all such questions have been solved in the past; for nations at war are not going to be satisfied with holding their armies at home merely because an ocean separates them from their enemies. The question is extraneous to the discussion of aircraft *versus* battleships as long as surface craft exist. The one present effective solution, as above stated,

is the difficult one of accompanying the transports carrying the army with sufficient aircraft to meet the enemy's aircraft, which in the present state of the art of aviation requires airplane carriers; and this brings us back to other surface craft to protect the carriers, and eventually to battleships.

So in discussing present day conditions it is apparent that correct solutions cannot be reached unless all the elements affecting warfare are considered. It is evident that a means must exist of carrying the might and power of the nation—and this means numbers as well as force—to any part of the surface of the earth and there sustaining them as long as may be necessary. If aircraft can do this now, then no further discussion is needed. If they cannot do it, it is known that it can be done by surface craft. As long as surface craft exist there will be a capital fighting ship of maximum power and endurance, which may be different from the present battleships, but which will embrace all the features imposed by the tactics and strategy of the time, the continuing elements of which are weapons, mass, motion, resistance, locomotion, endurance. And any discussion of the relative value of fighting units that does not take into account all of these inherent elements may easily result in faulty deductions.

It may be stated in conclusion that the method of appealing to the elements of tactics and strategy is not in general use as such, and in fact it cannot be stated that the elements are generally recognized. A number of years ago the writer, while lecturing at Harvard on military and naval subjects, found the method of considerable value in arriving at satisfactory explanations of historical battles and campaigns; and after a historical search of a couple of years was of the opinion that all of the essential inherent elements of tactics and strategy were comprised in those that are named above. Though they are not mentioned as elements, they are always considered in one way or another by the planners of the battles and campaigns, and are also given due weight by the authors who have written convincingly on military and naval subjects.

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